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## STUDENT REPORT

ANALYSIS OF CRYSTAL SHIELD 86 - THE  
FIRST SAC INNOVATION TASK FORCE

MAJOR JON K. TURNIPSEED 87-2575

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**REPORT NUMBER 87-2575**

**TITLE ANALYSIS OF CRYSTAL SHIELD 86 - THE FIRST SAC  
INNOVATION TASK FORCE**

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**Submitted to the faculty in partial fulfillment of  
requirements for graduation.**

**AIR COMMAND AND STAFF COLLEGE  
AIR UNIVERSITY  
MAXWELL AFB, AL 36112**

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

A180 871

## REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION <b>UNCLASSIFIED</b>			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION/AVAILABILITY OF REPORT  <b>STATEMENT "A"</b> Approved for public release; Distribution is unlimited.		
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE					
4. PERFORMING ORGANIZATION REPORT NUMBER(S) <b>87-2575</b>			5. MONITORING ORGANIZATION REPORT NUMBER(S)		
6a. NAME OF PERFORMING ORGANIZATION <b>ACSC/EDCC</b>		6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION		
6c. ADDRESS (City, State and ZIP Code) <b>Maxwell AFB AL 36112-5542</b>			7b. ADDRESS (City, State and ZIP Code)		
8a. NAME OF FUNDING/SPONSORING ORGANIZATION		8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER		
8c. ADDRESS (City, State and ZIP Code)			10. SOURCE OF FUNDING NOS.		
			PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.
11. <del>ANALYSIS OF SECURITY CLASSIFICATION</del> <b>ANALYSIS OF CRYSTAL SHIELD 86 - THE</b>					
12. PERSONAL AUTHOR(S) <b>Turnipseed, Jon K., Major, USAF</b>					
13a. TYPE OF REPORT		13b. TIME COVERED FROM _____ TO _____		14. DATE OF REPORT (Yr., Mo., Day) <b>1987 April</b>	
				15. PAGE COUNT <b>66</b>	
16. SUPPLEMENTARY NOTATION  <b>ITEM 11: FIRST SAC INNOVATION TASK FORCE</b>					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB. GR.			
19. ABSTRACT (Continue on reverse if necessary and identify by block number)  The bestsellers <u>In Search of Excellence</u> and <u>A Passion for Excellence</u> spawned an interest about innovation in large organizations. The Strategic Air Command (SAC) formed an innovation task force called Crystal Shield 86. This innovation project appeared to be a failure because ten months after the task force met, an official SAC report had not been issued. This research project reviews what the Crystal Shield 86 project was, analyzes the charter fulfillment, and recommends improvements for future innovation projects. It concludes that Crystal Shield 86 had flaws which interfered with fulfilling of the project charter; however, it was not a failure. The recommendations primarily are about planning an innovation project within the headquarters SAC bureaucratic staff.					
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT  UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input checked="" type="checkbox"/> DTIC USERS <input type="checkbox"/>			21. ABSTRACT SECURITY CLASSIFICATION <b>UNCLASSIFIED</b>		
22a. NAME OF RESPONSIBLE INDIVIDUAL <b>ACSC/EDCC Maxwell AFB AL 36112-5542</b>			22b. TELEPHONE NUMBER <b>(205) 293-2483</b>		22c. OFFICE SYMBOL

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## PREFACE

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"There is one thing stronger than all the armies in the world: and that is an idea whose time has come" (5:336). Innovative ideas, more commonly called Yankee ingenuity, have been a source of strength for the United States since beginning of the nation. If the nation is to remain strong in a rapidly changing high-tech world, the American military must find ways to draw upon this Yankee ingenuity and use innovative ideas to not only keep the pace but to set it. In a military where the support staff has vastly outgrown the number of actual combat personnel, it is a true challenge to work innovative ideas through the large, and often highly politicized military bureaucracy.

Innovation has become one of the "in" concepts for managers and leaders in the mid 1980s and both the business and military communities have become engrossed by this "new" concept. The military leaders of the Air Force have taken an active interest in using the idea within their own bureaucracy.

This research project details one such attempt to apply the concept of innovation to a military organization and will cover the first Strategic Air Command (SAC) Innovation Task Force, called Crystal Shield 86. This document contains a summary of the Crystal Shield 86 project, an analysis of its effectiveness, and offers some recommendations for improving future innovation efforts. It is a part of a larger project on Innovation in SAC, conducted by a SAC fellow at the Airpower Research Institute.



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## ABOUT THE AUTHOR

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Jon K. Turnipseed is a major in the United States Air Force. He is a missile officer with a broad background which includes the Titan II, Minuteman, Ground Launched Cruise Missile, Peacekeeper, and Small ICBM weapon systems. He has worked primarily in missile operations as both a crew member and as a staff officer. While assigned to the SAC Top Hand program, he served on numerous countdown teams for ICBM operational test launches. He has previously written articles which have been published in the Nuclear Surety Journal and the 3901st Quarterly Review.

Major Turnipseed was a member of the first SAC innovation task force called Crystal Shield 86. He served as the Vardenberg AFB, California representative on the task force. Additionally, he was the recorder for one of the task force discussion panels.

He holds a Bachelor of Business Administration Degree, with a major in industrial relations, from the University of Iowa. He also holds a Masters Degree in Safety, earned from Central Missouri State University. His professional military education includes Squadron Officer School, both correspondence and residence, and Air Command and Staff College (ACSC) seminar program. He is currently a student in the ACSC residence program.

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## EXECUTIVE SUMMARY

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**REPORT NUMBER 87-2575**

**AUTHOR(S) MAJOR JON K. TURNIPSEED, USAF**

**TITLE ANALYSIS OF CRYSTAL SHIELD 86 - THE FIRST SAC INNOVATION TASK FORCE**

**I. Purpose:** To analyze the first formal Strategic Air Command (SAC) attempt at institutionalizing innovation and develop recommendations about similar future projects. This research project is being incorporated into a larger project on innovation in SAC, conducted by a SAC fellow at the Air Power Research Institute.

**II. Problem:** In the mid 1980s, bestseller management books extolled the virtues of innovation as the answer to declining American productivity. In early 1986, the first innovation task force in SAC was established by a project called Crystal Shield 86. The task force met, generated ideas, and passed the ideas to the HQ SAC staff; however, ten months after the task force met, an official HQ SAC report on the project had not been issued nor had any Crystal Shield 86 ideas been implemented. The project appears to be a failure because it did not result in any official actions or changes to SAC.

**III. Summary:** In Search of Excellence and A Passion for Excellence set the climate for interest in innovation, even



within the military. SAC developed the Crystal Shield 86 innovation task force concept from the Air Force Innovation Task Force. Base level personnel, not HQ SAC staffers, were tasked to develop future challenges for the command. Innovative ideas were solicited from all SAC bases and from panel discussions held by the task force members. The ideas were given to the SAC staff for coordination prior to seeking CINCSAC approval and guidance for implementation. Bureaucratic inefficiencies and staff turf battles immobilized the project during the early coordination phase. The staff could not reach an agreement, so the project never advanced to the CINCSAC level.

IV. Analysis: Project success or failure can normally be measured by the degree which the charter objectives were fulfilled. By literal interpretation, Crystal Shield 86 did not fulfill its charter; however, this does not mean that the project was a failure. Innovation is not an end product that can be measured; it is a process that involves changing human attitudes and perceptions. By officially promoting innovation within SAC, peoples' attitudes and perceptions were changed; therefore, because Crystal Shield 86 was successful at beginning to institutionalize innovation, it fulfilled the intent of the project.

V. Recommendations: SAC should continue the Crystal Shield project, with a few changes to diminish the problems encountered by the first task force. Better preplanning could ensure that all the SAC personnel, especially the HQ SAC staff, understand the intent of the project and their role in it. Minor changes to the task force discussion panels composition and education should improve efficiency of the panels. The most significant change required is establishing a new method of coordinating the ideas generated by the task force, primarily because initiation of new ideas is difficult in a bureaucracy. The innovative ideas generated by the task force should be coordinated with the staff only for comment and not concurrence. The ideas and staff comments could then be briefed to the CINCSAC and based upon this unfiltered information, new courses could be set for the command. The final recommendations deal with institutional changes. A permanent innovation point of contact needs to be established, although Crystal Shield does not necessarily have to be an annual event.

## BACKGROUND

To understand Crystal Shield 86, an examination must first be conducted on the background environment which fostered SAC's interest in innovation. The most recent interest about innovation may be traced to the American business community.

In 1982 a new book about business management took the country by storm. In Search of Excellence became the first management book to rank number one on the bestseller lists. It was on the bestseller lists for 130 weeks between 1982 and 1986, holding first place for over 50 of those weeks. In mid 1985 a sequel titled A Passion for Excellence became the second management book to also reach number one (15:1). The popularity of these books is indicative of the large following which ultimately impacted American attitudes about management, as well as ideas about the role of innovation in excellent organizations.

In In Search of Excellence, Thomas J. Peters and Robert H. Waterman, Jr. emphasize three primary elements found in all excellent organizations: people, innovation, and leadership. They stressed that innovation was not a luxury but an absolute necessity. The books went on to explain the efficiency of change, the organizations' effect on innovative people, and the authors' philosophies about how to set up and operate innovative groups (2:Part III; 3: Part III). To capitalize on this "new" idea of innovation, many businesses set up "skunkworks" to enhance the innovative environment.

After seeing growing accolades of the "excellent organizations" in the business community, many military leaders became interested in the books and the concepts. Both books not only became required readings for officers working on advanced degrees in management but also began to appear in Air Force professional military education (PME) courses as suggested readings. Military leaders' interest in the excellent organization concepts apparently resulted in several official actions.

In June of 1984 the Chief of Staff of the Air Force, Gen Charles A. Gabriel, chartered the first innovation task force. It was tasked to look to the year 2025, generate and then implement ideas on how best to prepare the Air Force to meet its

future needs. It was also chartered to find ways to sustain innovation in the Air Force. The expensive project involved over a hundred people and took over a year to complete. The Air Force Innovation Task Force (AFITF) report was published in February 1986 (9:1; 18:--).

When Gen Larry D. Welch became the Commander-in-Chief of the Strategic Air Command (CINCSAC) in 1985, he set five primary goals for SAC. One of these goals was to "encourage innovation and initiative in finding ways to do our work better and smarter" (see Appendix 1). Crystal Shield 86 was conceived as a result of the interest of staff officers at HQ SAC in the concepts of an excellent organization, as well as in response to the command's innovation goal (18:--; 21:--).

This brief background explains how SAC became interested in the concepts of innovation and Crystal Shield 86. The next step is to examine the development of the Crystal Shield 86 concept.

### Crystal Shield 86 Concept

Implementation of the CINCSAC's goal for innovation was not a simple task. Because innovation was a "new" concept, there was no an existing staff office of primary responsibility (OPR). The task could have been assigned to any one of a number of operations, plans, or future oriented staff functions. Also debatable was if a totally new staff function should be set up to become the OPR for the new task.

In practice, no one office was directly tasked to work on the innovation goal. The idea of forming a new staff function was never advocated. Staff officers in the SAC Long Range Planning Office (HQ SAC/XPI) were aware of both the Air Force Innovation Task Force and the CINCSAC's innovation goal. These officers became interested in a SAC innovation project and they began to develop the idea within the office (18:--). This was congruent with the AFITF run by the Air Staff Long Range Planning Division (AF/XOXIP).

Late in 1985 HQ SAC/XPI action officers began to seriously develop the concept for a SAC innovation task force. There was very little precedent for them to draw upon; therefore, the basic concepts were developed from the methods used by the AFITF and from the ideas expressed in In Search of Excellence. The XPI staff officers unilaterally developed the concept and coined the name, Crystal Shield 86. By the end of 1985 they had received approval for the project through the normal staff coordination process (18:--). The Crystal Shield 86 concept is most easily explained by breaking it down into four general

areas; what, who, how, and when.

What Crystal Shield 86 was planned to accomplish seemed simple on the surface and very broad. The purpose of the task force was most easily defined by the Crystal Shield 86 charter: "to generate a small number of attainable challenges for the command, find ways to implement them, and foster a climate to sustain innovation" (10:1). This was patterned primarily after the AFITF, where a large number of ideas were narrowed down to just seven readily attainable ones (9:Ch 1).

Who should participate in Crystal Shield 86 was also patterned primarily after the AFITF, with a small influence from In Search of Excellence. The participants were from varied career fields, from all the major bases in SAC. The mixture included male and female representative, mid-level officers/NCOs/civilians, and representatives from reserve and guard units with SAC missions. XPI project officers "guesstimated" the best mix of Air Force Specialty Codes (AFSC) and bases, selected 40 participants as the optimum number for a manageable-sized group with the desired AFSC and base mix (21:-- ; 18:--). In order to avoid the "party line" or the headquarters "mind set", a definite choice was made to exclude HQ SAC staff officers although HQ SAC/XPI personnel would participate as facilitators during the meetings (16:--).

Determining exactly how to conduct Crystal Shield 86 was also a difficult job. A great deal of effort by the XPI staff resulted in the concepts discussed in the next three paragraphs (18:--). Each SAC base would receive a tasking message that would indicate the number of people and types of AFSCs required for the task force. The task force members would come to HQ SAC for a kickoff meeting. At this initial meeting the members would be briefed on the concepts and objectives of Crystal Shield 86 and their roles as task force members. The members would then return to their home bases to work the project for one month. They were to publicize the project locally, interview "key" senior base staff personnel, and solicit inputs on innovative ideas from the entire base population. The results of the interviews were to be sent to HQ SAC/XPI for compilation. The task force members were then to meet at a location away from normal duty distractions for a week of panel discussions.

After a considerable debate within XPI, the final panel topic areas were selected to be mission, support, technology, and people issues. Each panel would use an XPI staff officer as a facilitator and have a recorder assigned. The facilitator and recorder would remain on the same topic panel all week. Members were to spend one day on each of four panels and they were also

randomly mixed to be with a different group of people each day. After the week of task force panel meetings was concluded, ideas generated in these panels would be combined with the ideas submitted by the base general populations. The consolidated ideas and interviews were then to be discussed by the SAC Long Range Issues Group (LRIG). (The LRIG is a working group chaired by XPI and has representation from each major functional staff area.) The Crystal Shield 86 concept then called for coordination at the deputy chief of staff (DCS) level, but only to solicit comments on the report and not to edit it before briefing the CINCSAC. The final stage was to brief the SAC Council (of general officers) and CINCSAC, General Welch. CINCSAC was to then give direction to the SAC staff on implementing the most feasible ideas and pursuing staffing actions to refine/validate other promising ideas (18:--).

The schedule of Crystal Shield 86 events was extremely optimistic. The kickoff meeting was scheduled for early February 1986, with the task force panel sessions set for mid-March 1986. XPI was allowing a month to work up the ideas and interviews into an organized briefing/report. The LRIG briefings and discussions would be conducted the first week of April, and the DCS coordinated inputs would come in during the next two weeks. The SAC Council and Gen Welch were to be briefed by the end of April 1986 (see Appendix 2).

As indicated earlier, implementation of CINCSAC's innovation goal was no simple task. A significant amount of effort went into just developing the concepts needed for Crystal Shield 86. The next section examines how these concepts were actually implemented.

### **Crystal Shield 86 Task Force Activities**

Crystal Shield 86 was officially announced on 13 January 1986 by CINCSAC message (see Appendix 3). As planned, the message explained the task force charter, tasked the Eighth and Fifteenth Air Force Commanders to provide the required mix of personnel from the major SAC bases, and scheduled the kickoff and panel session meetings for February and March 1986 (10:1-2).

As with any large project, the responses to the original tasking message varied from base to base. Most wing commanders saw it as a worthwhile project and honestly attempted to select their "best people," as the tasking message requested. Other commanders saw it as another headquarters busy-work project that would not produce anything meaningful, so they selected people not in key jobs and ones who had minimal schedule conflicts (17:--). The majority of the commanders expressed one

complaint: No SAC funds were provided to the units to pay for the task force member's travel and per diem expenses; therefore, each unit had to fund the project from existing wing temporary duty (TDY) accounts. This was unlike the AFITF, which had several hundred thousand dollars in dedicated funds (18:--).

On 3 February the kickoff meeting was held at HQ SAC with a reasonable cross section of SAC people in attendance (see Appendix 4). The XPI staff built a common level of understanding for task force members through a series of briefings. They covered the future of the Air Force, the future of SAC, the Command of Excellence (a military view of In Search of Excellence), the results of the Air Force Innovation Task Force, an introduction to productivity and innovation within SAC, and the Crystal Shield 86 concept (14:1). Although the task force members started the day with vastly differing levels of understanding about innovation, they ended the day with a common core of understanding not only about innovation but also about what was expected from them (17:--; 22:--). The task force members were informed that they had one month to publicize Crystal Shield 86 locally, distribute and collect the innovative idea worksheets throughout the base general population, and interview selected key senior staff.

Publicizing Crystal Shield 86 was a challenge because HQ SAC did not emphasize or coordinate publicity. Each task force member was given a SAC News Service news release (see Appendix 5) which they were to submit to the local base paper for publication. The publicity at each base varied dramatically, depending upon the ingenuity and drive of the task force members as well as the support of the local wing staff. All bases did have articles published and a few bases stopped the publicity effort at that level. Additional publicity at other bases ranged from briefing the wing staff down through pitches given at squadron commander's call (17:--). Publicity was a key element in getting the general base population to submit innovative idea worksheets.

The distribution of innovation worksheets varied dramatically from base to base, and was also primarily affected by the task force members' ingenuity and support from the local commander (17:--). Each task force member was given only 10 worksheets (see Appendix 6). The members were required to determine the quantity needed for the base and then to get them reproduced locally. At a few locations local reproduction was not approved, so only limited copies were produced on office copiers. Some bases publicized that the worksheets were available upon request or could be picked up at selected locations. Other bases attempted to send a worksheet to every individual on the base (17:--).

Overall, the innovation worksheet concept did not appear to work very well because by 26 March, only 336 worksheets from all of SAC had been submitted to HQ SAC/XPI (20:--). Nearly 200 of the submitted worksheets came from one base, where over 3,400 worksheets were distributed to the entire base (22:--). Although the intent of the worksheet was to obtain only genuine innovative ideas and not to gather a large number of worksheets just to fill a quota (18:--), the extremely small number of worksheets submitted indicated a significant shortcoming. Without a large SAC-wide survey, it was impossible to tell if the problem was caused by a failure of the publicity, inability to get worksheets to the people who were interested, or just from a SAC work force that was apathetic to the project. Although the worksheets didn't work out as well as expected, the interviews of selected senior staff personnel went very well.

HQ SAC/XPI received 175 interviews from task force members (20:--). Each task force member was given a list of questions (see Appendix 7) and was asked to interview key base senior staff personnel. These interviews were of wing, base, and squadron commanders, other key staff officers at the bases, and NCOs in positions of senior enlisted advisor, first sergeant, and superintendent. The interviews covered a large cross-section of the command and included 2 air division, 15 wing, and 29 squadron commanders. Everyone interviewed was guaranteed nonattribution in an attempt to gather their honest opinions. All the interviews were conducted after the kickoff meeting and before the March 1986 panel sessions (20:--).

The task force members and the HQ SAC/XPI staff met at Barksdale AFB, Louisiana, to conduct the Crystal Shield 86 panel discussions from 10 - 14 March. The meetings were held in the Gen Russell E. Dougherty Conference Center. The facility was well suited for the meeting because it was large enough for the task force to meet as a group, as well as having space to break up into four separate panel rooms (see Appendix 8).

The task force members were randomly distributed into four discussion panel groups, defined by the functional areas of mission, technology, support, and people issues. Each day the task force members were distributed into new groups, so that by the week's end each member was allowed to sit on all four panels. This was done to lessen the tendency toward "group think" and to prevent the formation of a dominate group.

The panels were chaired by XPI officers and had one task force member assigned as a recorder/cochairman. The chairmen and recorders remained on the same panel for all four days. The chairman served as a facilitator, tasked not to direct the group

but to keep it focused on the subject area. The chairman had a list of questions related to the subject area to stimulate the discussion on those occasions when the panel discussions stopped. The recorder kept notes on the main ideas brought up by the panel (19:--; 22:--).

Task force members were not given any introductory information about panel discussions, creative thinking, or brain-storming techniques. The informal ground rules given to the panels were very simple. Everyone was allowed to speak and express their ideas. The subject discussed had to be related to the panel subject area. Anything said was on a nonattribution basis. The rank of the person submitting an idea would have no bearing on the group's acceptance of the idea. Military personnel were required to be in uniform (18:--; 22:--).

The people and support panels generated the most lively discussions. Those were the two areas in which nearly everyone had some inputs (22:--; 18:--). The technology panel was difficult to conduct because very few people were aware of state-of-the-art or future technologies that could have military implications (19:--). Surprisingly, the mission panel was also difficult to conduct. Most task force members were only aware of their own unit's mission and were uncertain about the overall SAC mission. The panel chairman found it necessary to conduct a brief tutorial on the SAC mission and the use of military force as an instrument of national policy (18:--). All panels did generate a significant number of ideas which were recorded in the panel notes.

At the end of the week, the task force members were given a synopsis of each panel by the panel chairman. They were also told that the plan was to take the panel ideas, worksheet inputs, and interview comments and combine this raw information into a single report. The "Crystal Shield 86 -Challenges to the Command" report would be sent through the SAC staff for comment and the CINCSAC would be briefed at the end of April. The task force members were also told that Crystal Shield was an on-going project. The 1986 members would be kept informed of the status of the report and they were asked to remain the innovation representatives at their bases until the Crystal Shield 87 members were selected. The 1986 participants would not be allowed to return in 1987 (22:--).

The task force members departed to their home bases and the XPI staff returned to HQ SAC with a large volume of paper. On 18 April 1986, a message was sent out from the SAC Vice Commander to thank the task force members. It also said that "XPI is currently in the process of organizing the data for staff review and developing command challenges" (see



Appendix 9). This report was written the end of January 1987 and as of that time, nothing more had been heard from official SAC channels concerning Crystal Shield 86.

#### **Crystal Shield 86 HQ SAC Activities**

When the XPI staff returned to HQ SAC, they were basically pleased with the results of the panel discussions. The rough spots encountered in some panels had been minimal and the panel chairmen thought that the panels had generated some solid ideas. No one thought the panels had developed a large number of amazingly innovative ideas, but there were many good ideas which could be pursued. The objective now was to get the task force information into a usable format, coordinate a written package for comments from the SAC staff and prepare to brief the CINCSAC (20:--). The first step was to format the panel notes into a usable form.

Each panel chairman took the notes from the four days of their panels and compiled the information. The first step was to develop a summary of all the ideas generated. Some ideas were brought up on different days of the panel, so those identical ideas needed to be identified and then documented as only one. The basic ideas were then grouped into general subject areas. The XPI staff officers compared the types of information from each panel, then decided on a common format to accommodate all the panels. The common format was a short narrative about the panel, then a listing of the major subject areas, followed by a listing of ideas. The major subject areas were identified as "topic/issues," under which appeared a brief description of why the subject was an issue or topic for discussion. Under the topic/issue paragraph, ideas were listed related to why changes were needed and/or methods for change. After completion of the panel summaries, each panel chairman was to write an executive summary which would highlight the key issues from the panel. Several other administrative tasks also needed to be worked (18:--).

One XPI officer was assigned the task of compiling the ideas from the key personnel interviews. This was a large task and consisted of reading all 175 interviews and trying to identify common ideas and themes. It was also difficult to produce a written synopsis because of the nonattribution guarantee. This summary needed to be generic in nature, to avoid identifying any of the interviewees. Another officer worked with the innovation worksheets. He was tasked to summarize and to highlight ideas not covered in the panel summaries. Letters thanking each person for submitting an innovation worksheet also were sent to those who put their name and address on the worksheet (21:--;

18:--). These were very time consuming tasks and the Crystal Shield schedule did not allow much time for completion.

At this point, it is worth noting that a workload factor began to affect XPI's ability to make the Crystal Shield 86 schedule. Crystal Shield was the primary tasking of only two of the XPI staff officers. Because of all the work devoted to kicking off Crystal Shield, many of the routine ongoing office projects had to be put on hold. These projects now required immediate attention to get them back on track. Further compounding the workload situation, three of the panel chairmen and the XPI director were notified for reassignment to other bases. These officers now had not only to close out their work on Crystal Shield 86, but also to close out all of the other projects they had been working. This workload factor, combined with the large volume of Crystal Shield data, slowed the process for a planned CINCSAC briefing by the end of April (16:--; 18:--; 19:--; 20:--; 21:--).

By the end of March, summaries had been completed on three of the panels and rough draft summaries were nearing completion on the fourth panel, the interviews, and innovation worksheets. As the time for the LRIG briefing rapidly approached, there was pressure to start putting all the information together. Point papers were written based on the information available at the time (11:1-2; 12:1-2; 13:1-2). A package was developed which included the point papers, draft CINCSAC message commending the Crystal Shield efforts, and a schedule of future events. This package was then sent through the normal coordination process, where it was stopped at the two-letter office level. The general believed that Crystal Shield 86 had not yet produced any tangible results; therefore, the proposed CINCSAC message was premature. He also informed the XPI staff that he didn't see many new ideas or real innovation in the project (19:--; 20:--). The point papers were allowed to be sent through the SAC Command Section as a status report on the project (see Appendix 10).

With guidance to get more results oriented, the XPI staff began to prepare for the LRIG briefing. All of the summaries were still not completed, but a few specific and obtainable ideas were provided for the LRIG briefing. These submissions were combined with the point papers to form the basis of the LRIG package (19:--). The LRIG members would be asked to use their expertise in their various areas to reduce the ideas to a small number of obtainable ones. This was similar to the AFITF method of operation. The briefing was prepared for presentation to the LRIG in early April, as the Crystal Shield 86 schedule indicated (18:--).

The LRIG met and was briefed on the Crystal Shield concept and on the ideas selected by XPI. Thirty-two ideas were presented (see Appendix 11). The group was asked to study the ideas and rank order them in order of importance and obtainability. The top six ideas would then be assigned to an OPR to work up. The ideas were eagerly accepted by the LRIG representatives from the various HQ SAC deputates. The representatives took ideas back to their respective offices to collect the staff inputs (19:--; 20:--). The LRIG was to reconvene in mid April to discuss the results.

A letter was sent to all task force members on 18 April 86 (see Appendix 14), which informed them of the progress of the project and included the point pages which had been sent through the Command Section. It explained that the LRIG was working on the project to identify the challenges which would be submitted to the CINCSAC, and that the panel proceedings were being written up into a final report, which all task force members would receive. The letter also asked for the members to forward any additional innovation worksheets to XPI.

In late April, the LRIG met to reduce the ideas down to six. Each OPR brought back inputs coordinated only within the three letter area of responsibility. The eagerness shown at the first meeting was no longer present. One office withdrew from the process stating that their area of responsibility was not open for either discussion or for ideas that would change their methods of operation. Other offices reported that the ideas for discussion in their areas were beyond the control of HQ SAC and therefore should not be considered by the LRIG. A slim majority of the offices did report that there were ideas which could be addressed by the group; however, there were disclaimers attached to all of these ideas (18:--; 19:--; 20:--; 21:--).

The common opinion expressed by the various OPRs was that the ideas brought up by Crystal Shield were "known" problems, most of which were "already in-work." They also expressed a concern that the generals could misinterpret the Crystal Shield report and think that the OPRs were not properly doing their assigned jobs. The various offices would support the Crystal Shield project only if the ideas were "reworded" to be more in line with the "in-work" solutions. Some offices also wanted to reword Crystal Shield ideas to use this "hot" new project for gaining support for other projects which were not winning acceptance from the senior staff. All OPRs expressed concern about taking on additional work; therefore, by rewording the Crystal Shield ideas into something similar to the "in-work" projects, additional work would be minimal (18:--; 19:--; 20:--; 21:--).

At this point, Crystal Shield 86 was at the mercy of the HQ SAC bureaucracy. XPI did not have the expertise on all the specific areas required to give an appropriate response to the Crystal Shield ideas. The senior staff would not permit XPI to send an uncoordinated report to the CINCSAC, and the staff would only coordinate on those areas/ideas that they were comfortable supporting. This filtering process would allow the CINCSAC to hear only what the HQ SAC staff was thinking about and working on, not specifically what the task force had brought up. The problems associated with coordination within the HQ SAC bureaucracy are included in this report not to find fault or to place blame, but to point out a common problem faced by innovative projects in a large bureaucracy. This problem is described in the following excerpt:

Innovation means change. Thus it can be interpreted as a threat to people who are affected by it and is likely to arouse their opposition. The psychologist Schein writes: Organization planners or top managers often naively assume that simply announcing the need for a change and giving orders that the change should be made will produce the desired outcome. In practice, however, resistance to change is one of the most ubiquitous organizational phenomena.....it is generally found that those workers and managers who are directly affected will resist the change or sabotage it if it is forced upon them (7:13).

The XPI staff was at a loss as to how to proceed. They were under pressure to produce a meaningful product, yet a method of how to produce a meaningful project without staff coordination could not be determined. The senior staff expected to see some results with the normal fully coordinated staff action. Since the staff was brought in late in the project, they were not about to let anything go up the chain that didn't make them look good. XPI could do nothing without staff coordination, so the whole project began to stall while possible courses of action were investigated. The end of April passed without meeting the planned CINCSAC briefing. With the schedule now uncertain and the four officers departing the office, even less pressure was put upon finishing the project (18:--; 19:--; 20:--).

To keep the Crystal Shield project going, in early May a new report was prepared to go up to the Command Section. This report contained the top six ideas which were acceptable to the LRIG. It was written to obtain staff coordination, wording it to resemble known problems which were already being worked by the staff. This report was also stopped in coordinated at the two-letter office symbol. The general again objected that there was nothing new and definitely nothing innovative in the report.

All six of the ideas were already known to the headquarters staff and were being worked by various staff agencies. There was still nothing worthwhile to tell the CINCSAC so the report was sent back for rework (19:--; 20:--).

The project reached a stalemate, because no one was sure how to proceed. The departing XPI officers began out processing and had little time to work on the project. Without a plan of attack, no one in the office wanted to work the project, especially in light of the political problems that Crystal Shield was facing at all staff levels. The near fatal blow to project was the announcement that General Welch would also be departing and therefore a new CINCSAC would soon be in charge (18:--; 19:--). By early June, the project had entered an almost dormant stage.

Over the next seven months, XPI struggled to keep the project from being killed by the lethargic staff. The LRIG members continued to discuss Crystal Shield ideas, but as the project began to fade from the limelight, the action officers were reluctant to become associated with an undertaking that appeared to be a "loser" (19:--). The "turf battles" continued in the LRIG as various OPRs used their leverage in attempts to try and shape the Crystal Shield report. A small number of innovation worksheets were turned over to appropriate OPRs for action; however, the staff was again reluctant to bring up problems in their areas of responsibility or to take on additional work. The report was reworked several times, attempting to produce a product that could be supported by the staff and yet show a few attainable innovative ideas (19:--; 20:--).

In December, an XP letter was sent to the other two-letter offices in HQ SAC. This letter asked for the status of the LRIG Crystal Shield items that the various OPRs had been "staffing" for the last six months. With interest in the Crystal Shield items now at the general officer level, the staffing actions were rapidly concluded and responses to LRIG items arrived in XPI. Some items previously reported as "in-work," were now being modified to reflect Crystal Shield inputs. Other OPRs gave positive responses to opening new areas identified by Crystal Shield. By the end of December, XPI responded to these positive reactions and sent 62 of the "best" innovation worksheets to the appropriate OPRs. The OPRs were not tasked with responding to the innovation worksheets, but to examine the ideas for possible new staff actions (20:--).

A briefing to the SAC Command Section and issuing of a final report has not been accomplished, as of the writing of this research project in January 1987. The final Crystal Shield 86

report is in draft form and should be ready for publication in February (20:--). The controversy over selecting a limited number of challenges to the command no longer appears to be a major stumbling block with the staff; however, the coordination of the report is still not completed. Hopefully, Crystal Shield has regained enough momentum to no longer be held hostage by the bureaucracy.

#### Analysis of Crystal Shield 86 Charter Fulfillment

For analysis, a standard of measurement is required. In this case of innovation in SAC, the one standard currently available is the Air Force Innovation Task Force (AFITF). The AFITF was used as a reference point for analyzing Crystal Shield 86 charter fulfillment.

The AFITF did submit and receive approval of a final report from the Chief of Staff of the Air Force. This published report contained seven recommendations for action. The seven actions were then assigned to appropriate OPRs for implementation (9:Ch 9). The actual implementation of the ideas has taken place with varying degrees of success.

The Crystal Shield 86 charter was contained in the CINCSAC kickoff message. It was to "generate a small number of attainable challenges for the command, find ways to implement them, and foster a climate to sustain innovation" (10:1). To analyze charter fulfillment, each of the three main points of the charter will be examined independently.

Whether a small number of attainable challenges for the command were generated, is a complex question. On a traditional scale and compared to the AFITF, the author believes that it did not because the project was never officially concluded. Although many ideas were generated, they were not submitted to the CINCSAC for official approval. The CINCSAC approval is required before any action can become the "command position." Because the CINCSAC never officially approved the challenges, there cannot be any official challenges for the command as required by the charter. However, the issue of generating a small number of obtainable challenges for the command does have another aspect.

From a broader and less traditional perspective, the author contends that there was one official challenge for the command. The first challenge for SAC was the simple fact that Crystal Shield 86 was officially approved to challenge the status quo. Innovation is the act of introducing new things or methods (6:687). It is not a report, circulated through the bureaucracy

until it is proclaimed as legitimate by the head bureaucrat. SAC personnel, from general officer through airman basic, were officially challenged to step outside of their daily routine and to think on a new level about what they do. From this broad perspective, the first official challenge for the command was to simply have an innovation task force at all. Officially forming a group and tasking them to look for new and different ways is a truly innovative approach for SAC.

Like all organizations, SAC has an informal organization comprised of small groups of people and these people are the "heart and soul" of the command. From a less traditional viewpoint, the "command" is not an entity but merely a name given to these groups of people. By challenging the people who comprise SAC to think about their organization in new ways, the command was therefore challenged. People throughout the command generated ideas, many of which challenged the HQ SAC staff views. Ideas generated by Crystal Shield 86 are still being quietly worked at many levels, from the squadron through HQ SAC's action officer (19:--). For example, the Crystal Shield 86 idea of needing to train more like we expect to fight, got the ball rolling to have fighter aircraft actually intercept SAC bombers at "unplanned" times during low-level training missions. The SAC bomber operations staff is currently working out the details for conducting this "radical" new type of training (20:--).

These new ideas may not carry the official Crystal Shield label on them; however, as long as they are slowly evolving into new ways for SAC to conduct its operations, then the act of innovation is continuing to raise challenges within the command. On this informal or less traditional level, the answer to the first part of the charter fulfillment question is yes. "Are there ways to implement these challenges?" is the second question about charter fulfillment which needs to be answered.

The question of methods for implementation is difficult to handle because of the lack of "official" Crystal Shield 86 challenges. When compared to the AFITF, on an aggregate level, this part of the charter does not appear to be fulfilled. HQ SAC proved itself to be a bureaucracy in the classical, and unfortunately, the negative sense of the word. As with most bureaucracies in modern corporate America, HQ SAC is resistant to new methods or ideas. The value of a staff is to filter ideas because what seems like a great idea to one branch of a large organization may undermine another branch and therefore be detrimental to the overall organizations mission. The problem which develops within a staff is that this filtering process tends to kill new ideas because of the difficulty of getting the entire staff to agree. As a totally new concept, Crystal Shield 86 was not a normal staff function and was therefore highly

vulnerable to being stopped by this bureaucratic staff filtering process.

The Crystal Shield 86 report followed the normal process for coordination within the HQ SAC staff, even though it was not a normal type of function (18:--). An innovative "special" project requires a new or different coordination process to bypass the normal bureaucratic roadblocks. Because Crystal Shield 86 was allowed to be slowed down, modified, and therefore controlled by the bureaucracy, it appears that the new methods were not found for the Crystal Shield 86 project itself, let alone for any ideas it generated. Therefore, the author believes the part of the charter to find ways to implement challenges was not fulfilled. This leaves the third and final part of the Crystal Shield 86 charter.

Fostering a climate to sustain innovation is an exceptionally difficult thing to attempt to measure. Few, if any, people could accurately define what a climate for sustaining innovation is, let alone assess the effectiveness of fostering such a climate. When compared to the AFITF, the charter does not appear to be fulfilled in this area either.

Crystal Shield 86 was the first official attempt to institutionalize innovation in the command which some have noted for its unimaginative, rigid, "checklist" mentality. As the first such attempt, it was closely watched by many people who could not believe that this innovative behavior would be accepted. A common theme from the interviews of senior officers was that "Crystal Shield is an excellent idea but many were skeptical about its impact" (12:1). From the author's own experience with the task force activities, the following concern was expressed in a February 1986 letter to XPI: "There is a belief that any good ideas brought up by the task force will be killed by HQ SAC staffing, long before they reach CINCSAC." (see Appendix 13). The perceptions are that many people expected Crystal Shield 86 to never be accepted by the command, and because nothing officially ever came out of the innovation efforts, their suspicions were confirmed. Because publishing of a timely report and implementation actions were never taken, the subliminal message was that the innovation project was not acceptable in SAC. It appears that innovation could not even survive the short term, much less be openly sustained within SAC. Therefore it also appears that Crystal Shield 86 did not meet its charter of fostering a climate for sustaining innovation.

When examined as a whole, the Crystal Shield 86 charter has not been fulfilled. Although many challenges were identified for the command, the challenge which consumed the most energy



was attempting to work new/innovative ideas through the bureaucratic HQ SAC staffing process. No methods new or old were found to implement innovative ideas and the stagnation of the Crystal Shield 86 project has dampened the climate for innovation within SAC. Although the charter was not fulfilled, a final question needs to be asked in this discussion on charter fulfillment. Is charter fulfillment a measurement of success or failure of Crystal Shield 86?

The author contends that success or failure of the innovation effort in a military organization cannot be accurately measured. Nor is the success directly related to charter fulfillment. Innovation is an intangible which cannot be readily quantified; therefore, success or failure measurement becomes a subjective determination. Fulfilling the charter can and may yet be accomplished through "pencil whipping" some results of the project. It would be easy to list the items agreed to by the LRIG and then show them as implemented; however, this paperwork exercise showing project completion would not necessarily equate to a successful innovative project. On the other hand, subjective reasoning indicates that Crystal Shield 86 was a success just by the fact that SAC attempted an innovation project.

The lumber nature of the SAC's nuclear warfare mission has encouraged the development of a large entrenched ultraconservative bureaucracy. Most of the time it turns out very good staff work, but the bureaucracy is still considered by many to be ultraconservative and resistant to experimenting with new ideas. When this organizational bias is coupled with the military's traditional role, which calls for direction to be communicated downward from the headquarters, it is even more impressive that Crystal Shield 86 was ever allowed to be attempted. The assertion is that Crystal Shield 86 was a success, simply because it happened at all.

Several hundred SAC people participated in the project and it has left them with an impression that innovation has a place in SAC, albeit a small one. As these people move up in rank and position, innovation will be part of their vocabulary and work experience. The extraordinarily rapid rate of change in the world will eventually bring more pressure for innovation in the military, just as it has upon corporate America. New methods and approaches take years to become the norm in large organizations. For many years the military only had leaders, but as the military environment became more complex and costly, slowly the ranks began to include managers as well. Just as it took management years to find a place in the military organization, so it may be with innovation. The success of Crystal Shield 86 was in setting a precedent that innovation is

an officially acknowledged concept for use by SAC personnel. SAC has dropped the proverbial pebble in the pond; only time will tell how far and wide the ripples will go.

### RECOMMENDATIONS

The research strongly suggests that the Crystal Shield innovation project should be continued. Military leaders and managers can learn from the American business community and apply the valuable lessons to military organizations. As expressed by Brigadier General James D. Kellim and Dr Timothy R. Keck in the Defense Management Journal, the fundamentals of In Search of Excellence do "apply to virtually all organizations, including the military" (8:26). Crystal Shield 86 was just the fledgling attempt, and many lessons can be learned from it. The recommendations of this report are provided to help sustain the innovation effort.

Recommendations offered in this report are structured primarily to assist future innovation efforts in SAC; however, they may also apply to other large organizations as well. The recommendations are the authors opinions and are based upon research conducted on innovation, research of the actual Crystal Shield 86 project, and personal experiences as a Crystal Shield 86 task force member. Recommendations for improving Crystal Shield are divided into four main subject areas: preplanning, task force activities, staffing, and institutional changes.

Preplanning or preparations for an innovation task force is the first area where recommendations for improvements are made. There are five suggested subareas to look at when preplanning: the goals, support from the top, the action plan, education of the staff, and advance publicity. Setting clear, specific, and obtainable goals for the project is the place to begin. Instead of the somewhat ambiguous goals from the Crystal Shield 86 charter, a clearer set of goals might be to form a task force to gather ideas about preparing SAC for the future, brief CINCSAC on the ideas, then implement ideas based on the CINCSAC's priorities. A precedent for forming a task force to gather ideas about SAC's future exists because of Crystal Shield 86, so this is a clear, specific, and obtainable goal. Briefing the CINCSAC about the task force is clear cut and bypasses the bureaucratic stumbling block of selecting the few best and most easily obtainable ideas. Getting the CINCSAC's priorities for preparing for the future is easily obtainable and it would also give the staff incentive to make it work rather than shoot down the ideas. This goal is very dependent upon the interest and approval of the CINCSAC, which leads to the next area of preplanning, support from the top.

The value of CINCSAC support of the goals is that a person at the top of the bureaucracy can pull the ideas up through the system. This is the concept referred to in In Search of Excellence as that of the "godfather" or "executive champion." A person in such a position can "shield a potential practical new idea from the organization's formal tendency towards negation" (2:208). If the CINCSAC agrees to the concept of receiving an uncoordinated/uncensored briefing on the task force's perspective, this direct access to the top person bypasses the problems of the bureaucratic attempts to filter or stop the information flow. There is a small risk that the CINCSAC may become enthralled with an idea which may not be a truly "good" idea; however, this is no different than any other new idea thought-up by the head of an organization. The staff must either convince the CINCSAC of the drawbacks to the idea or else find a way to make it work.

A common deficiency of a bureaucracy is that the system tends to cover-up problems in an effort to make the people look good. CINCSAC endorsement of the innovation project should also help to reduce bureaucratic fears that finding problems is synonymous with finding fault. As one author expressed it, "Top management must give confidence to both middle management and to direct supervision that it recognizes that of course there are problems in its work area; there are problems in everybody's area, there are problems right across the whole organization" (1:125). The emphasis is on finding solutions not on finding fault. The staff would most likely be more supportive of the concept, if that's what the original plan specified. The next aspect to be examined in the preplanning area is the action plan itself.

The plan of action should be specific and known to the staff in advance of the project. Getting staff inputs during plan development not only helps everyone feel like they are part of the project but also lets everyone know what is expected of them. The plan should indicate exactly the type of briefings and reports that will be required, specify which office is the OPR, define the support relationships of the rest of the staff, and set up firm dates that must be adhered to for each event. This plan should eliminate many of the staffing problems which hampered Crystal Shield 86.

Publicity is the last area of preplanning recommendations. The publicity for the project needs to be a long buildup with an intensive campaign just before the task force activities begin. The objective of the publicity is to make people knowledgeable of the project and to start them thinking about innovations that could change the future for SAC. The HQ SAC staff needs to be

targeted for this publicity as well as the SAC bases. The staff bureaucracy may not resist the project if they understand the intent and don't see it as a challenge to their "empire." One problem with Crystal Shield 86 was that the staff felt the task force got all the glory and the staff got all the work. The publicity should help the staff understand that the innovation process requires teamwork and that the staff can become the real superstars. "The scarce people are the ones who have the know-how, energy, daring, and staying power to implement ideas.... Since business is a 'get-things-done' institution, creativity without action-oriented follow-through is a barren form of behavior" (2:207). The next major area of recommendations concerns the task force activities.

Three subareas of recommended improvements for task force activities are panel agenda, panel composition, and education of the task force participants. The basic concept of forming a task force and conducting the panel discussions, used for Crystal Shield 86, appears to be acceptable. The agenda for the panel discussions should be modified. Instead of having the four subject areas run each day, by four separate panels, each separate panel should discuss the same subject on the same day. This would encourage true creativity to take place independently in each panel. Under the Crystal Shield 86 method, by the last day, most people had already heard about the ideas discussed on the previous three days (22:--). Each day the personnel should still be mixed into different panel groups, to avoid "group think" problems. The task force may be required to hold the panel discussions at Offutt AFB because of the common panel agendas and also because of panel composition changes recommended in the next paragraph.

The composition of the panels should be restructured to include at least one action officer/NCO, a specialist in the subject area of that day's panel discussion. Having a HQ SAC staff representative on the panel could prompt a better flow and exchange of information. The task force members could present problem areas, offer solutions, and put forward ideas for future challenges. The staff representative could then explain to the panel members what initiatives are already "in-work" on the areas under discussion. This could promote a further information exchange that would allow both the task force members and the staff member to identify areas that neither had considered. This exchange process should allow both parties to concentrate on those areas which have been previously misunderstood or unexplored and not waste time on areas of agreement.

Including a staff representative on the panels might bring the group closer to the optimal innovative situation. For a

best-case situation "the consensus seems to be that the activity should be close enough to get succor from the parent organization and separate enough to induce a feeling of team spirit, a bit of 'us against them,' and isolation from the bureaucracy" (3:184). The staff members selected for panel participation would also be part of the last area of recommended task force activity improvement: education.

Restructuring the composition of the mission and technology panels requires special attention because they were the least productive panels during Crystal Shield 86. The technology panel is critical because the United States military is so heavily dependent upon a qualitative/technological advantage over the numerically superior Soviet military. In addition to HQ SAC staff expertise, non-SAC experts in mission and technology should be brought in. People from the Air Staff or Air University who routinely work with doctrine, strategy, and mission issues would enhance the mission panel. Air Force Systems Command, the Air Force Institute of Technology and the Air Force Academy have many engineers working in a variety of advanced technology areas that could have SAC applications. Getting the researchers in touch with the operators has a tremendous potential for finding innovative solutions to current as well as future requirements.

Of all the recommendations suggested by this report, education of Crystal Shield participants is the most important. People on the task force, in the staff and from the units, need to understand the importance of innovation if SAC is to become a truly excellent military organization.

Educating the staff and task force members about innovation should lead to a more successful project. The staff and task force members need a basic introduction to the difference between creative and analytical thinking. The volume and quality of ideas produced by the task force, and acceptance of the ideas by the staff, should be greatly improved if they both comprehend that the panel objective is to produce ideas and not solutions (4:5). It is the function of the staff to take the divergent ideas and use analytical thinking to narrow down the ideas by finding ways to implement them.

The quality of the project could also be improved if the panel chairmen were educated in the role and methods of being a facilitator. It is very easy for a panel chairmen to unintentionally set up barriers which inhibit participation and therefore inhibit innovation (4:60). The Crystal Shield 86 panel chairmen all expressed a similar feeling of awkwardness in their attempts to keep the discussion flowing and on track, and with getting everyone in the panel to participate (22:--). A

knowledgeable chairman and panel should significantly improve the outcome of the discussions.

To educate the discussion panels, the staff representatives to each subject panel could present a brief overview of the current HQ SAC philosophy as well as current and future initiatives in the subject area. This should give the task force members a common point of reference to start the discussions. The discussion could start by looking at the validity of the current staff actions and then lead into areas not being worked by the staff. The main objective is not to be critical of the HQ SAC staff actions, but to identify areas that need innovative approaches. An educated task force panel should produce a number of ideas for the report, which leads up to the next area of recommendations, staffing actions.

Staffing recommendations fall into two subareas, a three-tiered Crystal Shield report system and more publicity. The three-tiered staffing function is recommended to dampen the bureaucratic effects of the headquarters staff. The first tier is idea generation by the task force. Those ideas are reported directly to the top, the CINCSAC, with no staff coordination. The second tier is having the CINCSAC and SAC Council prioritize the ideas and then tasking the staff to find methods to implement them. The third tier is the HQ SAC staff putting the ideas into practice. The three-tiered reporting system is based upon the difference between creative and analytical thinking and the structure of the AFITF.

As previously explained, the function of the task force is to develop creative ideas and not to come up with implementation plans or solutions. Solutions are the business of the HQ SAC staff. If creative ideas are coordinated through the bureaucracy, they tend to be shot down by the staff, who are looking primarily at the practical side of the idea. When this happens during coordination, many innovative ideas are killed before they ever reach the CINCSAC level. With a three-tiered system, creative ideas are passed directly to the top of the organization, so that the CINCSAC prioritizes them based on merit and not ease of implementation. The CINCSAC and SAC Council can set priorities based upon a higher level of understanding of the command, Air Force, Department of Defense, and national strategic objectives. Once the priority of working on the creative ideas is set, the staff be will under pressure to find a way to make it work. It's much easier to tell another action officer that something is a dumb idea that just can't be done, than it is to give the same answer to CINCSAC.

Another type of "separation of powers" was also used by the AFITF. The AFITF was aware that the bureaucracy could have a

large influence on the final results of the task force. A concern expressed in the final AFITF report was that interest groups could use the report as a platform to advocate their position. The AFITF was also designed in phases or tiers which allowed for "minimum overlap of people from phase to phase to prevent advocates from pushing an idea through the entire project" (9:31). The three-tiered report system advocated here should also offer similar protection from special interest groups.

The final recommendation for staffing changes concerns follow-up publicity. If the people of SAC are to develop faith in the project, they need to see what happened to their inputs. Whenever a new program or change is put into effect because of the project idea, the Crystal Shield name should be identified with it. Nothing speaks louder than success and success should help to encourage other innovative actions. It's important to remember not to get hung up on the "home run mentality." The innovation game is best won by lots of "base hits" rather than one big "home run" ideas (2:211).

The final area of recommendations is defined as institutional changes, for lack of a better descriptive term. Three recommendations are submitted for possible changes to the Crystal Shield concept. The first is simply to fund the units for the TDY costs of Crystal Shield. Although not essential, unit commanders are normally much more supportive of projects when the costs do not come out of unit funds.

The second recommendation is that the innovation task force should be a semiannual rather than annual project. Nearly everyone with whom the author spoke, agreed that once a year would be counterproductive to the innovation objective (16:--; 18:--; 19:--; 20:--; 21:--). It has taken almost a full year to get the Crystal Shield 86 report out; however, the slowness in this case is primarily a result of the unique nature of the project. The recommendation for future years is to allow adequate time for the project to be properly planned, coordinated and conducted. With reduced headquarters manning, the preplanning and coordination will be a slow process, not to mention the long lead time needed for the publicity. The difficulties that the staff may face in developing solutions to creative ideas will also be a very slow process. The last thing to consider is that innovation and creativity need to be fostered, and having an annual project to be creative on demand may well be counterproductive. Far too many well-intentioned programs have turned into "square filling" exercises when frequent routine demands were levied on the bureaucracy. Innovation needs to be more institutionalized to become a part of the command but not be allowed to become another SAC

"checklist" to be mechanically accomplished. To institutionalize and keep innovation alive, there should be one additional change.

The third and final recommendation is that there should be a permanent innovation point of contact to keep the Crystal Shield project functioning. This point of contact should also serve as a conduit for feeding new ideas into the SAC staff, even when the main task force activities are at a low level. This HQ SAC innovative idea OPR would accept inputs and forward them onto the appropriate staff function. Each base would also need a point of contact, some type of additional duty for encouraging innovation, answering questions and collecting ideas to send to HQ SAC. This channel would not be to circumvent the suggestion or model installation programs, but rather to feed the headquarters ideas that don't fit into the normal systems.

The concept is that if SAC personnel read about or hear about new ideas or concepts which could have an application for SAC, there would be an established system to feed the idea to the staff. New ideas, methods, and technologies are being developed in many diverse areas of society. SAC could have a very broad "intelligence collecting" base if the personnel of the command had an easy and simple method to report new ideas and concepts. There would have to be some level of publicity to remind people that this channel was available, but this could be worked into the other ongoing periodic Crystal Shield publicity releases. One person even suggested that an open forum column for new ideas be established in SAC's Combat Crew magazine (20:--). With this type of column, people could write about innovative issues they're interested in, i.e., everything from new technology which could be used on a B-52, through a science fiction tactic which might be looked at for current day ICBMs. As a minimum, the magazine should have articles about the new and innovative things happening in the command because of the Crystal Shield project. The bottom line is that there is an untapped wealth of resources in our people, and a simple conduit to channel those resources has the potential of finding innovative approaches for SAC.

The recommendations offered in this report are just that: only recommendations. There are no right or wrong approaches to developing a new project such as Crystal Shield. The recommendations suggested in this report are the authors' perceptions of possible methods for improving the project. The important thing to remember is that the project should be a continuing effort which will go through an evolutionary change process.



## CONCLUSION

Most people will not dispute the need for innovation in our rapidly changing world. Many will question whether military organizations need to formally establish an innovation project. Formal or not, the military in general and SAC in specific need to be innovative to maintain the qualitative and technological edge that the United States military requires.

Formally attempting to conduct a project on innovation is not an easy task, even for many American business corporations. As a military organization and one of the more structured commands in the Air Force, SAC did not have an easy time conducting its first innovation project. Perhaps the most innovative thing to come out Crystal Shield 86, was the fact that it happened at all. The innovation genie is now out of the bottle. Only time will tell how it will survive.

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## APPENDICES

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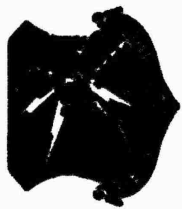
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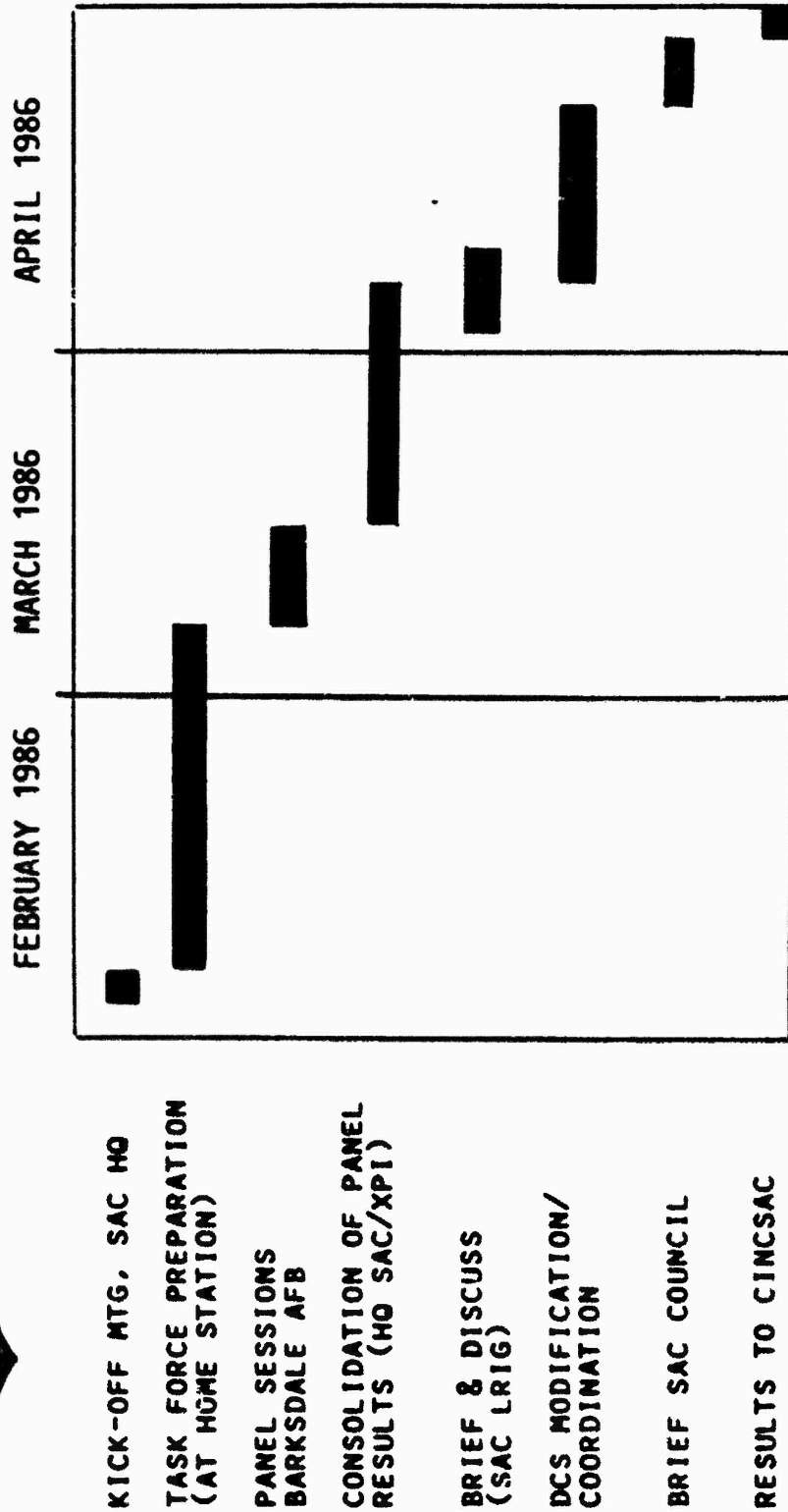
# **STRATEGIC AIR COMMAND GOALS**

- ☆ **PROVIDE SAC PEOPLE A LIVING AND WORKING ENVIRONMENT  
THAT PROMOTES PRIDE, PROFESSIONALISM AND INDIVIDUAL  
DIGNITY**
- ☆ **INCREASE THE DAY-TO-DAY READINESS OF OUR FORCES**
- ☆ **INCREASE THE QUALITY OF AIRCREW AND MISSILE CREW TRAINING**
- ☆ **ENCOURAGE INNOVATION AND INITIATIVE IN FINDING WAYS TO  
DO OUR WORK BETTER AND SMARTER**
- ☆ **DECENTRALIZE AUTHORITY AND RESPONSIBILITY AND REWARD  
THOSE WHO SHOW THEY CAN DO IT BETTER**

UNCLASSIFIED



CRYSTAL SHIELD 86



NOTE: RESULTS TO FIELD IN MAY 86, ALTHOUGH PARTIAL RESULTS MAY ARRIVE EARLIER

UNCLASSIFIED

APPENDIX 3

CINCSAC MESSAGE

P 131414Z JAN 86  
FM CINCSAC OFFUTT AFB NE//CC//  
TO AIG 740//CC//

UNCLAS

SUBJECT: CRYSTAL SHIELD 86  
8AF/CC AND 15AF/CC ACTION ONLY. ALL OTHERS INFO.

1. AN ESSENTIAL ELEMENT IN THE CONTINUING SUCCESS OF ANY ORGANIZATION IS ASSURING SUFFICIENT OPPORTUNITY AND LATITUDE WITHIN THE ORGANIZATION FOR CREATIVITY AND INNOVATION. THIS IS ESPECIALLY TRUE FOR THIS COMMAND. ONE OF MY PRINCIPAL GOALS AS CINCSAC IS TO "ENCOURAGE INNOVATION AND INITIATIVE IN FINDING WAYS TO DO OUR WORK BETTER AND SMARTER." I FULLY SUPPORT FRESH NEW IDEAS AND METHODS FOR THE COMMAND WHICH LEAD TO MORE PRODUCTIVE AND USEFUL ACTIONS.

2. AS A MEANS TO STIMULATE INNOVATIVE THOUGHT AND, REALIZING THAT MOST IDEAS ORIGINATE AT OPERATING LEVELS, SAC IS FORMING AN INNOVATION TASK FORCE. ITS CHARTER IS TO GENERATE A SMALL NUMBER OF ATTAINABLE CHALLENGES FOR THE COMMAND, FIND WAYS TO IMPLEMENT THEM, AND FOSTER A CLIMATE TO SUSTAIN INNOVATION. TO SOME EXTENT, THIS PROJECT WILL BE PATTERNED AFTER THE RECENT AF INNOVATION TASK FORCE BUT WILL BE UNIQUE TO SAC NEEDS.

3. THE HQ SAC OFFICE FOR LONG RANGE PLANNING (XPI) WILL BE THE FOCAL POINT FOR CRYSTAL SHIELD 86, BUT PEOPLE FROM THE FIELD UNITS, REPRESENTING A BROAD CROSS-SECTION OF BACKGROUNDS AND EXPERIENCE, WILL ALSO BE KEY PARTICIPANTS. A ONE-DAY CONFERENCE TO KICK-OFF THE PROJECT IS SCHEDULED FOR 3 FEB 86 AT SAC HEADQUARTERS. A SECOND CONFERENCE IS TENTATIVELY SCHEDULED FOR 10 - 14 MAR 86.

4. THE 3 FEB SESSION WILL INFORM AND MOTIVATE THE PARTICIPANTS TO THE TASK. THE PLANNED FIVE WEEK BREAK ALLOWS FOR CONFEREES TO SOLICIT IDEAS AND INNOVATIONS FROM THEIR HOME UNITS. THESE PREPARATIONS WILL PROVIDE A BASIS FOR PANEL DISCUSSIONS DURING THE SECOND CONFERENCE SESSION. TYPICAL PANELS WILL COVER MISSION, PERSONNEL, SUPPORT, TECHNOLOGY, ETC. RESULTS FROM THE PANEL SESSIONS WILL BE CONSOLIDATED INTO PRACTICAL COMMAND OBJECTIVES. MORE DETAILED INFORMATION WILL BE SENT TO THE INDIVIDUALS SELECTED TO PARTICIPATE.



5. TO ASSURE THE PROPER BLEND OF EXPERIENCE AND AREA OF EXPERTISE, PLEASE SELECT FROM YOUR BEST PEOPLE AT THE SQUADRON, WING AND NAF HQS LEVEL THOSE PERSONNEL WHO SATISFY THE SPECIFIC REQUIREMENTS LISTED BELOW:

8 AIR FORCE

- 1 - B-52 AIRCRAFT COMMANDER
  - 1 - FB-111 NAVIGATOR
  - 1 - KC-135 OFFICER CREWMEMBER (SEE NOTE BELOW)
  - 1 - KC-10 PILOT
  - 1 - INTELLIGENCE OFFICER (SEE NOTE BELOW)
  - 1 - INTELLIGENCE NCO (E-6 OR HIGHER)
  - 1 - MISSILE COMBAT CREW COMMANDER (MINUTEMAN)
  - 1 - MISSILE COMBAT CREW COMMANDER (SEE NOTE BELOW)
  - 1 - MUNITIONS MAINTENANCE OFFICER (O-5/O-4) (SEE NOTE BELOW)
  - 1 - ENLISTED MAINTENANCE SUPERVISOR (E-7 OR HIGHER)
  - 1 - SUPPLY SQUADRON COMMANDER
  - 1 - SERVICES OFFICER
  - 1 - CBPO CHIEF (SEE NOTE BELOW)
  - 1 - SACMET MANPOWER OFFICER (O-4/O-3)
  - 1 - SECURITY POLICE LAW ENFORCEMENT NCO (E-7 OR HIGHER)
  - 1 - PUBLIC AFFAIRS OFFICER (SEE NOTE BELOW)
  - 1 - MWR REPRESENTATIVE (CIVILIAN, GS-11 PREFERRED)
  - 1 - INFORMATION SYSTEMS STAFF OFFICER (O-4/O-3) (SEE NOTE BELOW)
  - 1 - CIVIL ENGINEER (OFFICER - O-4/O-3)
- (NOTE: PLEASE ENSURE THAT AT LEAST 2 OF THESE SEVEN INDIVIDUALS ARE FEMALE OFFICERS.)

15 AIR FORCE

- 1 - B-1 OFFICER CREWMEMBER OR B-52 EWO
- 1 - B-52 RADAR NAVIGATOR
- 1 - KC-135/KC-10 BOOM OPERATOR (E-7 OR ABOVE)
- 1 - EC-135 OFFICER CREWMEMBER
- 1 - RC-135 AIRCRAFT COMMANDER
- 1 - SR-71 OR U-2 CREWMEMBER
- 1 - MISSILE SQUADRON OPERATIONS OFFICER (OR ASSISTANT) (MINUTEMAN)
- 1 - DEPUTY MISSILE COMBAT CREW COMMANDER
- 1 - MAINTENANCE SQUADRON COMMANDEER
- 1 - MISSILE MAINTENANCE OFFICER (O-4/O-3)
- 1 - SUPPLY OFFICER (O-4/O-3)
- 1 - MEDICAL SERVICE OFFICER
- 1 - CHIEF, CIVILIAN PERSONNEL BRANCH
- 1 - PERSONNEL TRAINING NCO (E-7 OR HIGHER)
- 1 - SECURITY POLICE OPERATIONS OFFICER
- 1 - TRANSPORTATION OFFICER (O-4/O-3)
- 1 - COMMUNICATIONS OFFICER (O-4/O-3)
- 1 - CHIEF, BUDGET BRANCH
- 1 - CHIEF, COMMAND AND CONTROL DIVISION (DOC)

ALL PERSONNEL SELECTED SHOULD BE AVAILABLE TO ATTEND BOTH THE FEBRUARY AND MARCH SESSIONS OF THE TASK FORCE. ALL PARTICIPANTS WILL REQUIRE FUNDING FROM THEIR HOME UNITS.

6. IT WOULD BE HELPFUL IF YOU COULD DESIGNATE A NAF POC, SO THAT MY PROJECT OFFICERS, LT COL THOMPSON OR LT COL BAUMGARDNER, CAN PROVIDE ADDITIONAL INFORMATION ON THE PROJECT. THEY CAN BE REACHED AT AUTOVON 271-6767.

7. INNOVATION IS VITAL TO SAC, AND IT IS OUR HOPE THAT CRYSTAL SHIELD 86 WILL PROVIDE THE NECESSARY IMPETUS TO MOVE THE COMMAND SMOOTHLY INTO THE 21ST CENTURY. I NEED YOUR SUPPORT AND COOPERATION FOR THIS UNDERTAKING.

BT

# APPENDIX 4

## CRYSTAL SHIELD 86 PARTICIPANTS LIST

<u>NAME/RANK</u>	<u>ORG/BASE</u>	<u>JOB TITLE</u>
<u>CONFERENCE FACILITATORS</u>		
1. Thompson, Terrence N. Lt Col	HQ SAC/XPI Offutt	People Panel Chairman
2. Baumardner, Thomas R. Lt Col	HQ SAC/XPI Offutt	Support Panel Chairman
3. Herrington, Clarence, Jr. Lt Col	HQ SAC/XPI Offutt	Mission Panel Chairman
4. Hockaday, David D. Major	HQ SAC/XPI Offutt	Technology Panel
5. Graham, Scott J. Captain	HQ SAC/XPI Offutt	Technology Panel Chairman
<u>MILITARY TASKFORCE MEMBERS</u>		
1. Brauer, Harold E. Lt Col	Blytheville	Supply Sq/CC
2. Fandel, William T. Lt Col	K.I.Sawyer	Mun Maint Officer
3. Hodges, Ronald M. Lt Col	78AREFS Barksdale	AFRES Officer
4. Thomas, Merle S. Lt Col	190 AREFG Forbes	DO
5. Bateson, Robert B. Major	4029 SRTS Beale	TR-1/IP
6. Boehm, Thomas T. Major	Pease	KC-135 Crewmember
7. Burley, Roger L. Major	93 BMW/DONB Castle	Chief, Bomb/Nav

8. Craft, Billy R. Major	44 SMW/MBM Ellsworth	Missile Maint Officer
9. Fox, Lowell Major	4392 Aero Spt Grp, Vandenberg	1STRAD AO
10. French, Bruce Major	Carswell	B-52 AC
11. Hayden, Thomas F., II Major	Loring	CE Officer
12. Johnson, David Major	Offutt	EC-135 Officer
13. Kippie, Peter W. Major	4018 CCTS Dyess	B-1 OSO
14. Langey, Michael B. Major	446 SMS Grand Forks	Missile Sq Opr Officer
15. Sprouse, Danny B. Major	92 AMS Fairchild	Maint Sq/CC
16. Thornton, Jack T. Major	320 BWM/DOC Mather	Ch, Com/Cntl
17. Turnipseed, Jon K. Major	1STRAD/TE Vandenberg	1STRAD AO
18. Aumen, Carl F. Captain	38 SRS	RC-135/AC
19. Baumgartner, Maryon W. Captain	44 Sup Sq Ellsworth	Supply Officer
20. Chambers, William A. Captain	Pease	FB-111 Nav
21. Kistler, Barry D. Captain	Whiteman	Missile Crew/CC Minuteman
22. Micale, Peter N., IV Captain	341 SPS Malmstrom	Sec Pol Ops Officer
23. Millican, Melinda J. Captain	91 SMW/SI Minot	Computer Officer
24. Moock, Barbra Captain	K. I. Sawyer	Services Officer

25. Mulroy, William B., Jr. Captain	2192 ISS Loring	Comm Officer
26. Robertello, Catherine M. Captain	321 Trns Sq Grand Forks	Trans Officer
27. Turk, Duane Captain	Wurtsmith	CBPO Chief
28. Wuesthoff, Scott E. Captain	Barksdale	KC-10 Pilot
29. McCain, Moira 1st Lt	Little Rock	Missile Crew Member
30. Negron, Lucrecia 1st Lt	Wurtsmith	Intell Officer
31. Rikli, Kristine M. 1st Lt	Barksdale	PA Officer
32. Sellers, Robert R. 1st Lt	USAF Rgn Hosp March	Med Services Officer
33. Wallgren, Delvan F. 1st Lt	44 SMW/DOT Ellsworth	Dep Missile Crew/CC
34. Thompson, David P. 2nd Lt	93 BMW/ACB Castle	Wing Budget Officer
35. Sacre, Jerry CMSgt	9 AREFS March	KC-135 BO
36. Piper, Frank R. SMSgt	Blytheville	Maint Super
37. Justice, Billy G. MSgt	9 CSG/DPM Beale	Ch, Base OJT
38. Kent, Stephen D. MSgt	Whiteman	Sec Pol NCO
39. Zima, Paul W. TSgt	Plattsburgh	Intell NCO

#### CIVILIAN TASKFORCE MEMBERS

1. Cawthon, Thomas H. GS-13	22 CSG/DPC	Ch, Civ Pers
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2. Smith, George  
GS-11

Det 5, 3904 MES SACMET  
Barksdale

3. Werner, Mike  
GS-11

McConnell MWR Rep

## APPENDIX 5

### SAC NEWS SERVICE RELEASE - CRYSTAL SHIELD 86

#### SAC INNOVATION EFFORT WANTS YOUR GOOD IDEAS

Headquarters Strategic Air Command has established an Innovation Task Force, nicknamed CRYSTAL SHIELD 86, to study creative ideas from people across the command.

The task force, a central point of contact to which people can submit ideas about the command's future, is part of an overall Air Force effort to support innovative ideas.

The efforts to meet future mission challenges started with the Air Force Chief of Staff's Innovation Task Force and Air Force System Command's FORECAST II: Emerging Technologies Studies. These are efforts to help develop creative and innovative ideas to meet challenges and exploit opportunities.

They share a common belief that our most valuable assets are the creativity and ingenuity which have always characterized the men and women of the U. S. Armed Forces. They also have common goals of stimulating and capturing innovation to meet mission requirements. At the direction of Gen. Larry D. Welch, SAC commander in chief, the command is pursuing innovation through CRYSTAL SHIELD 86. Representatives were selected throughout SAC to participate in CRYSTAL SHIELD 86.

This group met at Headquarters SAC Feb. 3 and will reconvene at Barksdale AB, La., March 10-14. The project will surface innovative ideas and provide the opportunity for participation from all levels of the command -- from the lowest ranking airman to the highest ranking officer.

Innovation, more than just an idea or a word, is a fundamental commitment to creating a "winning" atmosphere that encourages new ideas or variations of the old -- all leading in the direction of mission success. Above all, there needs to be a conscious search for opportunities and an atmosphere to support that search.

Innovation demands action. It includes the implementation of key ideas and follow-up action to ensure that the efforts are successful. SAC intends to focus command attention on the challenges identified in this process and to act on the bright ideas generated.

To sum it up, it is never "above one's pay grade" to think about and make recommendations on how to accomplish the mission better and smarter. People closest to the action (i.e., flight line, office, missile silo, maintenance shop) are best able to generate the bright ideas that will assure our strong deterrent posture well into the next century. (SACNS)

OPR: HQ SAC/XPI  
Offutt AFB, NE 68113-5001  
Phone: Autovon 271-6771



## INNOVATION WORKSHEET

TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_

NAME/RANK: \_\_\_\_\_

BASE: \_\_\_\_\_

ORGANIZATION: \_\_\_\_\_

PHONE: \_\_\_\_\_

DESCRIPTION OF IDEA

## FACTORS FOR CONSIDERATION (OPTIONAL):

- AREA OF APPLICATION- TIME PERIOD OF APPLICATION- IMPROVEMENTS EXPECTED- DISADVANTAGES- BARRIERS TO OVERCOME- ESTIMATED COSTS AND/OR SAVINGS



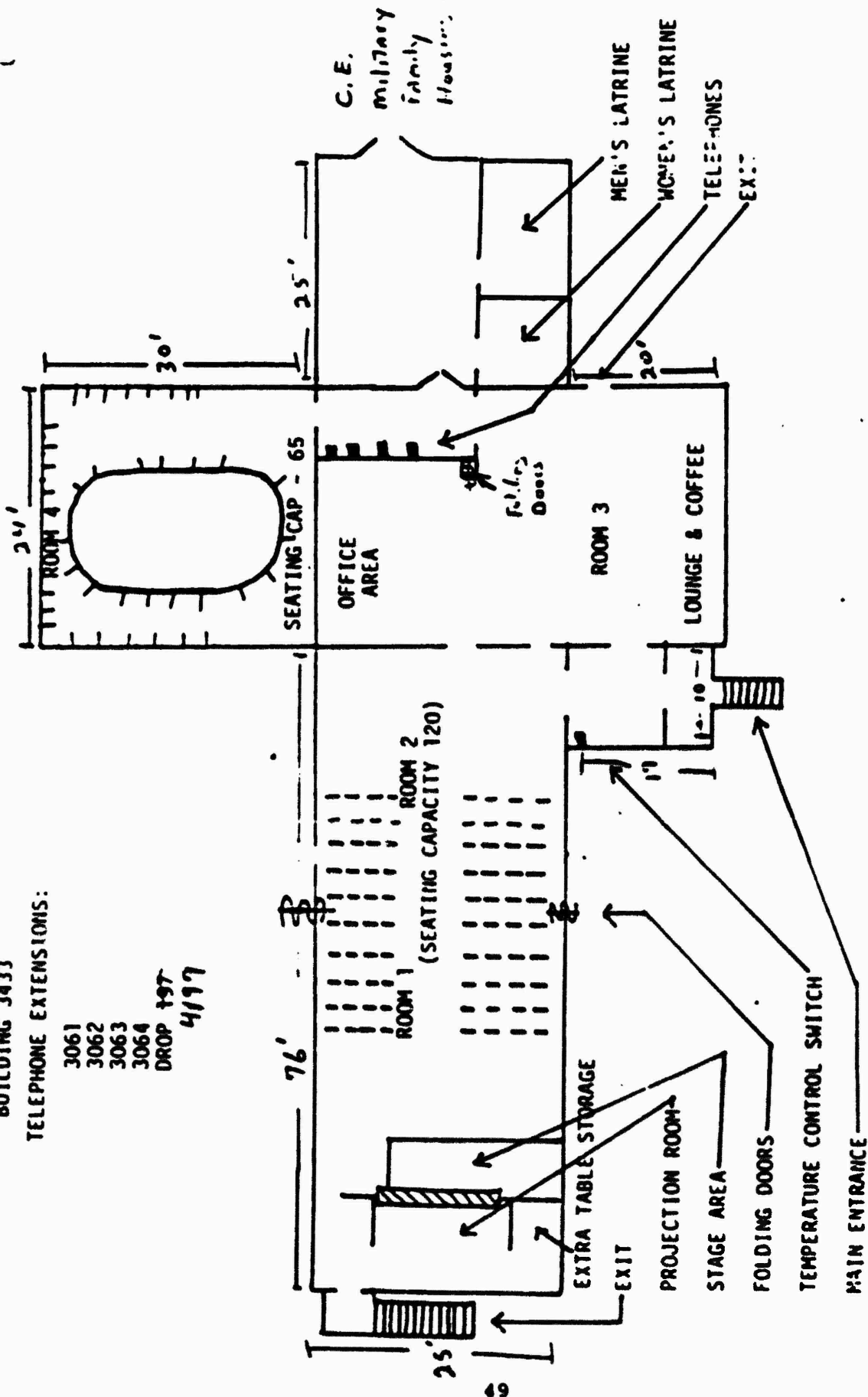
INTERVIEW QUESTIONS  
TO STIMULATE IDEA GENERATION

1. WHAT DO YOU ENVISION AS THE MOST IMPORTANT CHALLENGES THE STRATEGIC AIR COMMAND WILL FACE FROM 1995 TO 2025?
2. WHAT AREAS DO YOU THINK CRYSTAL SHIELD 86 SHOULD ADDRESS?
3. WHAT DOMINANT TECHNOLOGICAL TRENDS DO YOU SEE TAKING PLACE OVER THE NEXT 40 YEARS THAT WILL INFLUENCE SAC?
4. WHERE DO YOU SEE THE INNOVATIVE STRENGTHS IN THE USAF AND SAC TODAY? IN THE FUTURE?
5. WHERE DO YOU SEE A NEED FOR INNOVATION IN SAC TODAY? IN THE FUTURE?
6. WHAT ARE THE OPPORTUNITIES AND PROBLEMS CONCERNING THE SAC ROLE IN THE FUTURE JOINT ENVIRONMENT THAT NEED INNOVATIVE ATTENTION?
7. WHAT ARE THE OPPORTUNITIES AND PROBLEMS CONCERNING THE FUTURE SAC ROLE IN SPACE THAT NEED INNOVATIVE ATTENTION?
8. OUR INTERVIEWS OF USAF GENERAL OFFICERS POINT OUT THAT SENIOR LEADERSHIP INVOLVEMENT IS NECESSARY TO IMPLEMENT INNOVATIVE IDEAS - HOW DO YOU BELIEVE OUR SENIOR LEADERS SHOULD BE INVOLVED?

GEN RUSSELL E. DOUGHERTY CONFERENCE CENTER  
BUILDING 3433

TELEPHONE EXTENSIONS:

3061  
3062  
3063  
3064  
DROP 197  
4/97



APPENDIX 9

VCINCSAC MESSAGE

P 101530Z APR 86  
FM CINCSAC OFFUTT AFB NE//CV//  
TO 8AF BARKSDALE AFB LA//CC//  
15AF MARCH AFB CA//CC//  
1STRAD VANDENBERG AFB CA//CC//

UNCLAS  
SUBJECT: CRYSTAL SHIELD 86

1. SAC HAS TAKEN ANOTHER IMPORTANT STEP TOWARDS ENCOURAGING AND INSTITUTIONALIZING INNOVATION WITHIN THE COMMAND THROUGH CRYSTAL SHIELD 86. THE OFFICE FOR LONG RANGE PLANNING (XPI) IS CURRENTLY IN THE PROCESS OF ORGANIZING THE DATA FOR STAFF REVIEW AND DEVELOPING COMMAND CHALLENGES. HOWEVER, PRELIMINARY INDICATIONS POINT TO AN OVERALL SUCCESSFUL OUTCOME FOR THIS INAUGURAL PROGRAM.

2. THE PARTICIPANTS IN CRYSTAL SHIELD ARE TO BE COMMENDED FOR THEIR DEDICATION AND CONTRIBUTIONS. PLEASE EXTEND MY PERSONAL APPRECIATION TO EACH INDIVIDUAL WHO TOOK PART IN THIS TASK. YOU NEED TO BE AWARE OF THE VALUABLE ASSISTANCE AND SUPPORT PROVIDED BY LT COL BILL BENNETT, 8AF/XP, AND CAPT STEVE KREUZKAMP, 15AF/XP, DURING THE PLANNING AND EXECUTION PHASES OF THE PROJECT.

3. WE NEED TO SUSTAIN THE MOMENTUM AND ENTHUSIASTIC SUPPORT FOR THIS ENDEAVOR.

BT

POINT PAPERONCRYSTAL SHIELD 86 INTERVIEWS

**PURPOSE:** Provide information on interviews of key SAC personnel conducted by CRYSTAL SHIELD 86 participants

**DISCUSSION:**

- 175 interviews were conducted 4-24 Feb 86
  - Throughout SAC across a wide variety of staff positions including
    - 2 Air Division CC
    - 15 Wing CC
    - 29 Squadron CC
  - All interviewed guaranteed non-attribution of comments
  - Most interviews adhered to questions at attachment
- Key thoughts in interviews
  - Our innovative strengths lie in our young people
  - Quality of life not keeping pace with advancing society
  - Improper emphasis on inspections
  - Too much centralisation (not enough leeway to properly lead)
  - Lack of communication at all levels
  - CRYSTAL SHIELD is an excellent idea but many are skeptical about its impact
  - Senior officer commitment is key to innovation and change
- Numerous suggestions and innovative ideas, including
  - Inspect/evaluate results rather than means
  - Stability via fewer PCS moves
  - Decentralize and "de-regulate"
  - Quarterly Squadron Commander Conferences
    - Information exchange vs traditional workshop

Lt Col Thompson/XPI/6767/vag/26 Mar 86

- Low level refueling capability
- Palletized ECM systems
- Blueprint Clearinghouse
- SAC-wide scheduling
- Output of interviews to be integrated into CRYSTAL SHIELD 86 challenges for the Command.

**RECOMMENDATION**

- None. For information only.

1 Atch  
Interview Questions

POINT PAPER

ON

CRYSTAL SHIELD 86 INNOVATION WORKSHEETS

**PURPOSE:** Provide information on CRYSTAL SHIELD 86 Innovation Worksheets

**DISCUSSION:**

- Attached worksheet distributed throughout SAC by CRYSTAL SHIELD 86 participants
  - 336 have been returned and more expected
  - Worksheets represent ideas of wide spectrum of SAC personnel
    - All ranks, Airman Basic to Brigadier General, participated
- A wide variety of ideas submitted
  - Deterrence Evaluation
  - ICBM in TAC role
  - Dosed Alert Aircraft Parking Area
  - Aircraft Decoys
  - Flexible Facilities
  - Small ICBM Capability Improvement
  - Distant Mirror vs Looking Glass
  - MIP Clearinghouse
  - Logair Reevaluation
  - Secure Alert Areas
  - Video Training
  - Adventure Training
  - Women in Combat
  - CINCSAC "Think Tank"
  - Paperless Briefings
  - In Search of Excellence Seminars

Lt Col Thompson/XPI/6767/wag/26 Mar 86

- Disposition of ideas to be determined on individual basis
  - All will be acknowledged
  - Implement where possible/feasible
  - Incorporate data in CRYSTAL SHIELD 86 challenges for the Command

**RECOMMENDATION**

- None. For information only

1 Atch  
Innovation Worksheet

POINT PAPERONCRYSTAL SHIELD 86 PANEL PROCEEDINGS

**PURPOSE:** Provide information on CRYSTAL SHIELD 86 panel proceedings 10-14 Mar 86

**DISCUSSION:**

- Panels conducted at Dougherty Conference Center, Barksdale AFB
  - Four panels conducted simultaneously each day
  - Each CRYSTAL SHIELD participant spent one day in each panel
  - XPI personnel were panel facilitators
- Panels surfaced a variety of issues and offered innovative considerations for improvement
  - People Panel Examples
    - ISSUE: Too many SAC/Air Force programs question individual integrity or reduce individual dignity
      - CONSIDERATIONS: - Return to "my word is as good as my signature" concept
      - Single rooms for single airmen
      - Modify method of random drug testing
    - ISSUE: Little confidence in present OER system
      - CONSIDERATIONS: - Rate only top and bottom 5%
      - Modify front side of form
      - Let immediate commander determine endorsement level
  - Support Panel Examples
    - ISSUE: Too many people not utilized in primary skills
      - CONSIDERATIONS: - Contract out traditional military/base functions
      - Delegate manpower utilization authority to unit
      - "Tell me what to do, not how to do it"
    - ISSUE: Capability to protect our valuable assets is rapidly diminishing
      - CONSIDERATIONS: - Use technology (robotics, sensors, etc)
      - Physically relocate valuable assets
      - Anti-terrorism training camps

Lt Col Thompson/XPI/6767/wag/27 Mar 86



**-- Technology Panel Examples**

**--- ISSUE: Information systems designed to ease workload actually creating more work/confusion**

**CONSIDERATIONS:**

- Make people computer smart (PME, formal training, etc)
- User inputs early in acquisition cycle
- Multiple use computers

**--- ISSUE: Need to keep open mind about "far-out" technologies**

**CONSIDERATIONS:**

- Unit Science Officers a la Mr Spock
- Mining asteroids for critical minerals
- Domed/underground alert facilities

**-- Mission Panel Examples**

**--- ISSUE: Widespread lack of understanding of overall SAC mission among assigned personnel**

**CONSIDERATIONS:**

- UMBs to all assigned
- Shadow programs
- "Come fly with me"

**--- ISSUE: Training doesn't match way we're expected to fight**

**CONSIDERATIONS:**

- SAC Red Flag
- Exercises carried to conclusion
- Train to think vs react

**- Transcripts of panel proceedings to be reviewed for inclusion in CRYSTAL SHIELD 86 challenges to the Command**

## APPENDIX 13

### CRYSTAL SHIELD 86 IDEAS BRIEFED TO THE LONG RANGE ISSUES GROUP

#### PEOPLE ISSUES

CONCERN: TOO MANY SAC/AIR FORCE PROGRAMS QUESTION INDIVIDUAL INTEGRITY OR STRIP AWAY INDIVIDUAL DIGNITY

CONSIDERATIONS: RETURN TO CONCEPT OF "MY WORD IS AS GOOD AS MY SIGNATURE"

PROVIDE SINGLE ROOMS FOR SINGLE AIRMEN

MODIFY METHODS OF RANDOM DRUG TESTING

CONCERN: LITTLE CONFIDENCE IN PRESENT OER SYSTEM -- INEFFECTIVE AND TOO COSTLY

CONSIDERATIONS: RATE ONLY TOP 5% AND BOTTOM 5%

MODIFY FRONT OF FORM

LET IMMEDIATE COMMANDER DETERMINE ENDORSEMENT LEVEL

#### SUPPORT ISSUES

CONCERN: TOO MANY PEOPLE NOT UTILIZED IN THEIR PRIMARY SKILLS

MANAGEMENT OF PERSONNEL ASSETS TOO CENTRALIZED

CONSIDERATIONS: CONTRACT OUT WHERE FEASIBLE TO DEVELOP LEAN, MEAN BLUE-SUIT FORCE

DELEGATE MANPOWER UTILIZATION AUTHORITY TO UNIT

"TELL ME WHAT TO DO, NOT HOW TO DO IT."

CONCERN: DIMINISHING CAPABILITY TO PHYSICALLY SECURE BASES AND  
PROTECT ASSETS

CONSIDERATIONS: USE TECHNOLOGY (ROBOTICS, SENSORS, ETC)

RELOCATE VALUABLE ASSETS

BUILD ANTI-TERRORISM TRAINING CAMPS (TRAINING NOT  
LIMITED TO SECURITY POLICE)

#### TECHNOLOGY ISSUES

CONCERN: ADDED WORK AND CONFUSION FROM INFORMATION SYSTEMS  
DESIGNED TO EASE WORKLOAD

CONSIDERATIONS: MAKE PEOPLE COMPUTER SMART

CONSIDER USER INPUTS EARLY

MULTIPLE-USE COMPUTERS

CONCERN: NO FOCUS ON "TOMORROW" IN FIELD UNITS  
-NO ENCOURAGEMENT OR INFORMATION  
-INQUISITIVE ATTITUDE STIFLED

CONSIDERATIONS: UNIT "SCIENCE OFFICERS"

MORE COMMUNICATIONS LIKE "CRYSTAL SHIELD" OR  
"MIP"

KEEP AN OPEN MIND

#### MISSION ISSUES

CONCERN: WIDESPREAD LACK OF UNDERSTANDING OF THE OVERALL SAC  
MISSION AT UNIT LEVEL

CONSIDERATIONS: GIVE UMB'S TO ALL ASSIGNED

ENCOURAGE SHADOW PROGRAMS

INSTITUTE "COME FLY WITH ME" PROGRAMS

CONCERN: WE OFTEN DON'T TRAIN THE WAY WE ARE EXPECTED TO FIGHT

CONSIDERATIONS: INSTITUTE SAC "RED FLAG"

CARRY OUT EXERCISES TO THEIR CONCLUSIONS

TRAIN TO THINK, NOT ONLY REACT

ADDITIONAL INNOVATIVE IDEAS

- o DOMED ALERT AIRCRAFT PARKING AREAS
- o DISTANT MIRROR - SPACE-BASED REPLACEMENT FOR LOOKING GLASS
- o MIP CLEARINGHOUSE
- o CINCSAC "THINK TANK"
- o PAPERLESS BRIEFINGS
- o "IN SEARCH OF EXCELLENCE" BRIEFINGS
- o ELECTRONICS HOBBY SHOPS



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS STRATEGIC AIR COMMAND  
OFFUTT AIR FORCE BASE, NEBRASKA 68113-5001

REPLY TO  
ATTN OF: XPI (Lt Col Thompson)

18 April 1986

SUBJECT: CRYSTAL SHIELD 86

TO: Maj Turnipseed

1. In the month and a half since the conference at Barksdale there has been a significant amount of work accomplished on CRYSTAL SHIELD 86. A preliminary information package on the project proceedings to date has cleared the SAC Command Section. The point papers included in that package are attached for your information. The SAC Long Range Issues Group (LRIG) was convened and briefed on the raw information derived from the interviews and panel sessions. Currently, the LRIG is in the process of formulating challenges to be presented to CINCSAC. Very soon, the LRIG and other appropriate staff agencies will be provided the innovation worksheets for consideration on an individual basis. If you have received any additional worksheets, please forward them to XPI as soon as possible. Finally, panel chairmen are writing the proceedings of each panel for inclusion in the final report which each of you will receive. Additional information and progress reports will be provided in a timely manner as the headquarters phase of CRYSTAL SHIELD 86 continues.

2. In appreciation of your outstanding efforts from those of us in XPI, we have enclosed a group photo of the CRYSTAL SHIELD 86 participants for you. Additionally, each of us is prepared to assist you as necessary in any CRYSTAL SHIELD effort in which you may be involved at your home station. Please feel free to call us anytime (AV 271-6767) if we can be of assistance to you.

A handwritten signature in cursive script, reading "David A. Strohm".

DAVID A. STROHM, Lt Col, USAF  
Dir, Office for Long Range Planning

Peace . . . . is our Profession



APPENDIX 15  
DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 1ST STRATEGIC AEROSPACE DIVISION (SAC)  
VANDENBERG AIR FORCE BASE, CALIFORNIA 93437-5000

REPLY TO  
ATTN OF: TEPX (AUTOVON 276-9982)

24 FEB 1986

SUBJECT: Crystal Shield 86

TO: HQ SAC/XPI (Lt Col Thompson)

1. Enclosed are the summaries of the interviews which I conducted for Crystal Shield 86. All people interviewed were promised non-attribution and confidentiality. Please handle these interview summaries accordingly.
2. One concern which should be addressed by your office has been expressed by many people at Vandenberg. There is a belief that any good ideas brought up by the task force will be killed by HQ SAC staffing, long before they reach CINCSAC. I suggest that you develop a plan to surface controversial ideas even if the HQ SAC staff agencies/OPRs may disagree. Possibly the report could list major ideas but also include staff dissenting opinions.
3. Crystal Shield has been well received here at Vandenberg AFB and is openly supported by Maj Gen Watkins. Maj Fox and I are looking forward to the conference at Barksdale. We are scheduled to arrive on the evening of 8 Mar 86, so we will be able to meet with you any time on Sunday the 9th. We are scheduled to depart Shreveport at 1700 on 14 Mar. Please advise me if these times are unworkable.

JON K. TURNIPSEED, Maj, USAF  
Chief, Test Requirements Division

1 Atch  
Interview Summaries